03040201-09

(Jeffries Creek)

General Description

Watershed 03040201-09 (formerly 03040201-130) is located in Darlington and Florence Counties and consists primarily of ***Jeffries Creek*** and its tributaries. The watershed occupies 137,115 acres of the Upper and Lower Coastal Plain regions of South Carolina. Land use/land cover in the watershed includes: 36.9% agricultural land, 22.4% forested wetland, 21.6% forested land, 15.4% urban land, 3.1% scrub/shrub land, 0.3% nonforested wetland, and 0.3% water.

Jeffries Creek accepts drainage from Beaverdam Creek, Gulley Branch, Pye Branch, Middle Swamp (Oakdale Lake, Forest Lake, Alligator Branch, Billy Branch), Eastman Branch, and Cane Branch. Polk Swamp Canal (Adams Branch, Twomile Creek, Canal Branch) enters the system downstream, followed by Middle Branch, Long Branch, Boggy Branch, More Branch, and Willow Creek (Little Willow Creek, Cypress Creek, Spring Branch, Claussen Branch). The Jeffries Creek Watershed drains into the Great Pee Dee River. There are a total of 229.5 stream miles and 353.2 acres of lake waters in this watershed. Jeffries Creek and Middle Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Surface Water Quality

Station #	Type	Class	Description
PD-255	S/W	FW*	JEFFRIES CREEK AT SC 340 6.8 MI SSW OF DARLINGTON
PD-256	S/W	FW*	JEFFRIES CREEK AT S-21-112 4.8 MI W OF /FLORENCE
PD-065	P/W	FW	GULLEY BRANCH AT S-21-13, TIMROD PARK
PD-230	S/W	FW*	MIDDLE SWAMP AT SC 51 3.5 MI SSE OF FLORENCE
RS-01003	RS01	FW	POLK CREEK AT RD 13, 7.3 MI E OF FLORENCE
PD-035	S/W	FW*	JEFFRIES CREEK AT SC 327 AT CLAUSSEN
PD-231	S/INT	FW*	JEFFRIES CREEK AT UNNUMBERED RD 3.3 MI ESE OF CLAUSSEN
PD-167	W	FW	WILLOW CREEK AT S-21-57

Jeffries Creek **-** There are four SCDHEC monitoring sites along Jeffries Creek. This is a blackwater system, characterized by naturally low dissolved oxygen conditions. At the furthest upstream site ***(PD-255)***, aquatic life and recreational uses are fully supported. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Significant decreasing trends in five-day biological oxygen demand, turbidity, total phosphorus concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters. At the next site downstream ***(PD-256)***, aquatic life uses are fully supported. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A significant decreasing trend in five-day biological oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions, which are compounded by a significant increasing trend in fecal coliform bacteria concentration. Further downstream ***(PD-035)***, aquatic life and recreational uses are fully supported. Significant decreasing trends in five-day biological oxygen demand and fecal coliform bacteria concentration suggest improving conditions for these parameters. At the furthest downstream site ***(PD-231)***, aquatic life and recreational uses are fully supported. Significant increasing trends in dissolved oxygen concentration and decreasing trends in five-day biological oxygen demand, turbidity,

total phosphorus and total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters.

Gulley Branch (PD-065) – Aquatic life uses are partially supported due to pH excursions. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biological oxygen demand, turbidity, and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Middle Swamp (PD-230) – Aquatic life uses are not supported due to dissolved oxygen excursions, which are compounded by a significant decreasing trend in dissolved oxygen concentration. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Polk Creek (RS-01003) – Aquatic life and recreational uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen conditions. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations.

Willow Creek (PD-167) – Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen conditions. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-035	GB	MIDDENDORF	FLORENCE S. BALLARD STREET
AMB-008	GB	BLACK CREEK	MCLEOD MED CENTER

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
JEFFRIES CREEK MCCUTCHEON CONSTR./MCCUTCHEON #2 PIPE #: 001 FLOW: M/R	SCG730528 MINOR INDUSTRIAL
PYE BRANCH KOPPERS INC. PIPE #: 001 FLOW: 0.146	SC0003018 MINOR INDUSTRIAL
TWOMILE CREEK KOPPERS INC. PIPE #: 002 FLOW: 0.30	SC0003018 MINOR INDUSTRIAL

GULLEY BRANCH L.DEAN WEAVER/POSTON PIT PIPE #: 001 FLOW: M/R	SCG730459 MINOR INDUSTRIAL
MIDDLE SWAMP POINT SOUTH DEV./WILDBIRD RUN PIPE #: 001 FLOW: M/R	SCG730612 MINOR INDUSTRIAL
LITTLE WILLOW CREEK COMMANDER NURSING CENTER PIPE #: 001 FLOW: 0.025	SC0034703 MINOR DOMESTIC
GREAT PEE DEE RIVER CITY OF FLORENCE/PEE DEE RIVER PLANT PIPE #: 001 FLOW: 15.0 PIPE #: 001 FLOW: 18.0, 20.0, 22.0 (PROPOSED)	SC0045462 MAJOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
CITY OF FLORENCE COMPOSTING FACILITY COMPOSTING	211004-3001 ACTIVE
FLORENCE COUNTY LANDFILL INDUSTRIAL	211001-1601 INACTIVE
CITY OF FLORENCE TRANSFER STA. MUNICIPAL	212498-6001 ACTIVE
CITY OF FLORENCE DUMP MUNICIPAL	-------- CLOSED
FLORENCE COUNTY SUBTITLE D MUNICIPAL	--------- INACTIVE
PEE DEE MSWLF MUNICIPAL	---------- INACTIVE
FLORENCE COUNTY LANDFILL MUNICIPAL	211001-1101 INACTIVE

Land Application Sites

LAND APPLICATION SYSTEM ***FACILITY NAME***	***ND#*** ***TYPE***
PERCOLATION BASIN COUNTRY PINES APTS	ND0063801 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
POINT SOUTH DEVELOPERS LLC WILDBIRD RUN MINE	1560-41 SAND

MCCUTCHEON CONTRUCTION CO., INC. MCCUTCHEON #2	1174-41 SAND; SAND/CLAY
L. DEAN WEAVER CONTRUCTION CO. POSTON PIT	1294-41 SAND; SAND/CLAY
WILLIS CONTRUCTION COMPANY WILLIS CONTRUCTION MINE #2	0517-41 SAND; SAND/CLAY

Growth Potential

There is a high potential for growth in this watershed, which contains most of the City of Florence. The Florence urban area is the commercial center of the Pee Dee region and is expected to continue to grow, particularly in the I-20/I-95 vicinity on the western edge of Florence, and the major highways leading into the urban area. The watershed is served by U.S. Hwy. 52, U.S. Hwy. 76, I-20, and I-95 as well as the interchange between the interstates to the west of Florence. The construction of a southeastern bypass around the Florence urban area is currently underway and its completion should encourage growth.

This watershed, including the Florence urban area, the Pee Dee River area, and the Hartsville area is expected to be an area of major industrial expansion over the next twenty years. There are several large public or private industrial parks, located along the western side of the Florence urban area, and should foster additional large-scale development. This watershed has extensive water system coverage, including service from the City of Hartsville, the Darlington County Water and Sewer Authority, the City of Florence, and Florence County. The City of Florence has under design a surface water treatment facility on the Great Pee Dee River that could evolve into a regional water treatment plant. The City of Florence has also expanded its wastewater treatment plant and constructed an outfall to the Great Pee Dee River, which should increase the availability of sewer service in the watershed and increase the likelihood of additional growth and development. A 700-acre industrial park at I-95/SC327 has been built and should spur future growth. A penny sales tax in Florence County should spur growth by financing the proposed widening of S.C.Hwy 51 to U.S. 378, U.S. 378 across Florence County, and the SW Bypass around Florence (Alligator Road).

Watershed Restoration and Protection

Total Maximum Daily Loads (TMDLs)

A TMDL was developed by SCDHEC and approved by EPA for ***Gulley Branch*** water quality monitoring site ***PD-065*** to determine the maximum amount of fecal coliform bacteria it can receive and still meet water quality standards. The watershed contains no known cattle, and there are no AFOs or AFO land application areas. This watershed contains 43 OSWD systems with an average density of 4 per 100 acres, which could be significant. Fecal coliform sources associated with MS4s are expected and include human sources of fecal coliform (leaking sewers and SSOs). Domesticated pets could represent another source. The TMDL states that a 99% reduction in fecal coliform loading is necessary for the stream to meet the water quality standard.